

Claims

What is claimed is:

1. A method for controlling hydraulic flow to a hydraulic actuator in fluid communication with a pump, the method comprising:  
generating a signal representative of a speed of the pump;  
selecting a relationship from a plurality of relationships between valve commands and an operator input, the selection being based upon the speed signal; and  
modulating a valve to control the hydraulic flow to the hydraulic actuator based on the selected relationship and the operator input.
2. The method of claim 1, further including determining the plurality of relationships between the valve commands and the operator input, each of the plurality of relationships representing a valve spool position as a percentage of maximum flow with respect to the operator input.
3. The method of claim 2, further including generating a map including the plurality of relationships between the valve commands and the operator input.
4. The method of claim 3, further including storing the map in a memory.
5. The method of claim 2, wherein the plurality of relationships between the valve commands and the operator input are determined by mathematical equations.

6. The method of claim 1, wherein each of the plurality of relationships between the valve commands and the operator input is represented by a valve command and operator input graph.

7. The method of claim 1, wherein the operator input is a position of a lever for operating the actuator.

8. The method of claim 1, further including monitoring the speed of the pump to generate said speed signal.

9. The method of claim 1, further including monitoring a speed of a motor coupled to the pump, the signal representative of the speed of the pump being the speed of the motor.

10. A system for controlling hydraulic flow to a hydraulic actuator in fluid communication with a pump, the system comprising:  
a sensor assembly for generating a signal representative of a speed of the pump;  
an operator input device for providing an operator input;  
a controller electrically coupled to the sensor assembly and the operator input device, the controller being configured to select a relationship from a plurality of relationships between valve commands and the operator input based on the speed signal.

11. The system of claim 10, wherein each of the plurality of the relationships represents a rate of change in valve spool position as a percentage of maximum flow with respect to operator input.

12. The system of claim 10, wherein the controller is configured to modulate the valve commands based on the selected relationship and the operator input.

13. The system of claim 12, wherein the controller is coupled to a valve in fluid communication with the hydraulic actuator and the pump, the controller being configured to modulate the valve to control the hydraulic flow to the hydraulic actuator.
14. The system of claim 10, wherein the controller is preprogrammed with the plurality of relationships.
15. The system of claim 14, wherein the controller includes a map having the plurality of relationships.
16. The system of claim 14, wherein the controller includes mathematical equations to provide the plurality of relationships.
17. The system of claim 10, wherein the operator input device is a lever and the operator input corresponds to a position of the lever.
18. The system of claim 10, wherein the sensor assembly monitors the speed of the pump.
19. The system of claim 10, wherein the sensor assembly monitors a speed of a motor coupled to the pump, and the signal representative of the speed of the pump is the speed of the motor.
20. The system of claim 10, wherein the pump is a variable displacement pump.
21. The system of claim 10, wherein the pump is a pressure compensated, variable displacement pump.
22. A machine for moving a load, comprising:
  - a pump;
  - a hydraulic actuator in fluid communication with the pump;

a valve in fluid communication with the pump and the hydraulic actuator;

a sensor assembly for generating a signal representative of a speed of the pump;

an operator input device for providing an operator input; and

a controller electrically coupled to the sensor assembly and the operator input device, the controller being configured to select a relationship from a plurality of relationships between valve commands and the operator input based on the speed signal.

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